0590
0707

#3

OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/885,188

DATE: 01/25/2002
TIME: 17:01:04

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

SEQUENCE LISTING

(1) GENERAL INFORMATION:
(i) APPLICANT: Chris Somerville
Pierre Broun
Frank van de Loo
(ii) TITLE OF INVENTION: Production of Hydroxylated Fatty Acids in Genetically Modified Plants
(iii) NUMBER OF SEQUENCES: 15
(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Pillsbury Winthrop, L.L.P.
(B) STREET: 1600 Tysons Boulevard
(C) CITY: McLean
(D) STATE: VA
(E) COUNTRY: USA
(F) ZIP: 22102
(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Diskette, 3.50 inch
(B) COMPUTER: IBM PC-compatible
(C) OPERATING SYSTEM: MS-DOS
(D) SOFTWARE: MS Word
(vi) CURRENT APPLICATION DATA:
C--> **(A) APPLICATION NUMBER: US/09/885,188**
C--> **(B) FILING DATE: 21-Jun-2001**
(C) CLASSIFICATION:
(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US/08/530,862B
(B) FILING DATE: 06-Feb-1996
(A) APPLICATION NUMBER: PCT/US95/11855
(B) FILING DATE: September 25, 1995
(A) APPLICATION NUMBER: US 08/530,862
(B) FILING DATE: September 20, 1995
(A) APPLICATION NUMBER: US 08/320,982
(B) FILING DATE: October 11, 1994
(A) APPLICATION NUMBER: US 08/314,596
(B) FILING DATE: September 26, 1994
(2) INFORMATION FOR SEQ ID NO: 1
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 543 nucleotides
(B) TYPE: nucleotide
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: cDNA
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

ENTERED

RAW SEQUENCE LISTING DATE: 01/25/2002
PATENT APPLICATION: US/09/885,188 TIME: 17:01:04

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

TATTGGCACC GGCGGCACCA TTCCAACAAT GGATCCCTAG AAAAAGATGA AGTCTTTGTC 60
CCACCTAAGA AAGCTGCAGT CANATGGTAT GTCAAATACC TCAACAACCC TCTTGGACGC 120
ATTCTGGTGT TAACAGTTCA GTTTATCCTC GGGTGGCCTT TGTATCTAGC CTTTAATGTA 180
TCAGGTAGAC CTTATGATGG TTTCGCTTCA CATTTCTTCC CTCATGCACC TATCTTTAAG 240
GACCGTGAAC GTCTCCAGAT ATACATCTCA GATGCTGGTA TTCTAGCTGT CTGTTATGGT 300
CTTTACCGTT ACGCTGCTTC ACAAGGATTG ACTGCTATGA TCTGCGTCTA CGGAGTACCG 360
CTTTTGATAG TGAACTTTTT CCTTGTCTTG GTCACTTTCT TGCAGCACAC TCATCCTTCA 420
TTACCTCACT ATGATTCAAC CGAGTGGGAA TGGATTAGAG GAGCTTTGGT TACGGTAGAC 480
AGAGACTATG GAATCTTGAA CAAGGTGTTT CACAACATAA CAGACACCCA CGTAGCACAC 540
CAC 543

(2) INFORMATION FOR SEQ ID NO: 2

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 544 nucleotides

(B) TYPE: nucleotide

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

TATAGGCACC GGAGGCACCA TTCCAACACA GGATCCCTCG AAAGAGATGA AGTATTTGTC 60
CCAAAGCAGA AATCCGCAAT CAAGTGGTAC GGCGAATACC TCAACAACCC TCCTGGTCGC 120
ATCATGATGT TAACTGTCCA GTTCGTCCTC GGATGGCCCT TGTACTTAGC CTTCAACGTT 180
TCTGGCAGAC CCTACAATGG TTTCGCTTCC CATTTCTTCC CCAATGCTCC TATCTACAAC 240
GACCGTGAAC GCCTCCAGAT TTACATCTCT GATGCTGGTA TTCTAGCCGT CTGTTATGGT 300
CTTTACCGTT ACGCTGTTGC ACAAGGACTA GCCTCAATGA TCTGTCTAAA CGGAGTTCCG 360
CTTCTGATAG TTAACTTTTT CCTCGTCTTG ATCACTTACT TACAACACAC TCACCCTGCG 420
TTGCCTCACT ATGATTCATC AGAGTGGGAT TGGCTTAGAG GAGCTTTAGC TACTGTAGAC 480
AGAGACTATG GAATCTTGAA CAAGGTGTTC CATAACATCA CAGACACCCA CGTCGCACAC 540
CACT 544

(2) INFORMATION FOR SEQ ID NO: 3

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1855 nucleotides

(B) TYPE: nucleotide

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: genomic

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

ATGAAGCTTT ATAAGAAGTT AGTTTTCTCT GGTGACAGAG AAATTNTGTC AATTGGTAGT 60
GACAGTTGAA GCAACAGGAA CAACAAGGAT GGTTGGTGNT GATGCTGATG TGGTGATGTG 120
TTATTCATCA AATACTAAAT ACTACATTAC TTGTTGCTGC CTACTTCTCC TATTTCCTCC 180
GCCACCCATT TTGGACCCAC GANCCTTCCA TTTAAACCCT CTCTCGTGCT ATTCACCAGA 240
AGAGAAGCCA AGAGAGAGAG AGAGAGAATG TTCTGAGGAT CATTGTCTTC TTCATCGTTA 300
TTAACGTAAG TTTTTTTTGA CCACTCATAT CTAAAATCTA GTACATGCAA TAGATTAATG 360
ACTGTTCCTT CTTTTGATAT TTTCAGCTTC TTGAATTCAA GATGGGTGCT GGTGGAAGAA 420
TAATGGTTAC CCCCTCTTCC AAGAAATCAG AAACTGAAGC CCTAAAACGT GGACCATGTG 480
AGAAACCACC ATTCACTGTT AAAGATCTGA AGAAAGCAAT CCCACAGCAT TGTTTCAAGC 540
GCTCTATCCC TCGTTCTTTC TCCTACCTTC TCACAGATAT CACTTTAGTT TCTTGCTTCT 600
ACTACGTTGC CACAAATTAC TTCTCTCTTC TTCCTCAGCC TCTCTCTACT TACCTAGCTT 660
GGCCTCTCTA TTGGGTATGT CAAGGCTGTG TCTTAACCGG TATCTGGGTC ATTGGCCATG 720
AATGTGGTCA CCATGCATTC AGTGACTATC AATGGGTAGA TGACACTGTT GGTTTTATCT 780

RAW SEQUENCE LISTING DATE: 01/25/2002
PATENT APPLICATION: US/09/885,188 TIME: 17:01:04

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

TCCATTCCTT CCTTCTCGTC CCTTACTTCT CCTGGAAATA CAGTCATCGT CGTCACCATT 840
CCAACAATGG ATCTCTCGAG AAAGATGAAG TCTTTGTCCC ACCGAAGAAA GCTGCAGTCA 900
AATGGTATGT TAAATACCTC AACAACCCTC TTGGACGCAT TCTGGTGTTA ACAGTTCAGT 960
TTATCCTCGG GTGGCCTTTG TATCTAGCCT TTAATGTATC AGGTAGACCT TATGATGGTT 1020
TCGCTTCACA TTTCTTCCCT CATGCACCTA TCTTTAAAGA CCGAGAACGC CTCCAGATAT 1080
ACATCTCAGA TGCTGGTATT CTAGCTGTCT GTTATGGTCT TTACCGTTAC GCTGCTTCAC 1140
AAGGATTGAC TGCTATGATC TGCGTCTATG GAGTACCGCT TTGATAGTG AACTTTTTCC 1200
TTGTCTTGGT AACTTTCTTG CAGCACACTC ATCCTTCGTT ACCTCATTAT GATTCAACCG 1260
AGTGGGAATG GATTAGAGGA GCTTTGGTTA CGGTAGACAG AGACTATGGA ATATTGAACA 1320
AGGTGTTCCA TAACATAACA GACACACATG TGGCTCATCA TCTCTTTGCA ACTATACCGC 1380
ATTATAACGC AATGGAAGCT ACAGAGGCGA TAAAGCCAAT ACTTGGTGAT TACTACCACT 1440
TCGATGGAAC ACCGTGGTAT GTGGCCATGT ATAGGGAAGC AAAGGAGTGT CTCTATGTAG 1500
AACCGGATAC GGAACGTGGG AAGAAAGGTG TCTACTATTA CAACAATAAG TTATGAGGCT 1560
GATAGGGCGA GAGAAGTGCA ATTATCAATC TTCATTTCCA TGTTTTAGGT GTCTTGTTTA 1620
AGAAGCTATG CTTTGTTTCA ATAATCTCAG AGTCCATNTA GTTGTGTTCT GGTGCATTTT 1680
GCCTAGTTAT GTGGTGTCGG AAGTTAGTGT TCAAACTGCT TCCTGCTGTG CTGCCCAGTG 1740
AAGAACAAGT TTACGTGTTT AAAATACTCG GAACGAATTG ACCACAANAT ATCCAAAACC 1800
GGCTATCCGA ATTCCATATC CGAAAACCGG ATATCCAAAT TTCCAGAGTA CTTAG 1855

(2) INFORMATION FOR SEQ ID NO: 4

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 384 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

```
Met Gly Ala Gly Gly Arg Ile Met Val Thr Pro Ser Ser Lys Lys Ser
 1               5                  10                  15
Glu Thr Glu Ala Leu Lys Arg Gly Pro Cys Glu Lys Pro Pro Phe Thr
            20                  25                  30
Val Lys Asp Leu Lys Lys Ala Ile Pro Gln His Cys Phe Lys Arg Ser
        35                  40                  45
Ile Pro Arg Ser Phe Ser Tyr Leu Leu Thr Asp Ile Thr Leu Val Ser
    50                  55                  60
Cys Phe Tyr Tyr Val Ala Thr Asn Tyr Phe Ser Leu Leu Pro Gln Pro
65                  70                  75                  80
Leu Ser Thr Tyr Leu Ala Trp Pro Leu Tyr Trp Val Cys Gln Gly Cys
                85                  90                  95
Val Leu Thr Gly Ile Trp Val Ile Gly His Glu Cys Gly His His Ala
            100                 105                 110
Phe Ser Asp Tyr Gln Trp Val Asp Asp Thr Val Gly Phe Ile Phe His
        115                 120                 125
Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser His Arg Arg
    130                 135                 140
His His Ser Asn Asn Gly Ser Leu Glu Lys Asp Glu Val Phe Val Pro
145                 150                 155                 160
Pro Lys Lys Ala Ala Val Lys Trp Tyr Val Lys Tyr Leu Asn Asn Pro
                165                 170                 175
Leu Gly Arg Ile Leu Val Leu Thr Val Gln Phe Ile Leu Gly Trp Pro
```

RAW SEQUENCE LISTING DATE: 01/25/2002
PATENT APPLICATION: US/09/885,188 TIME: 17:01:05

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

```
                    180                 185                 190
Leu Tyr Leu Ala Phe Asn Val Ser Gly Arg Pro Tyr Asp Gly Phe Ala
            195                 200                 205
Ser His Phe Phe Pro His Ala Pro Ile Phe Lys Asp Arg Glu Arg Leu
        210                 215                 220
Gln Ile Tyr Ile Ser Asp Ala Gly Ile Leu Ala Val Cys Tyr Gly Leu
225                 230                 235                 240
Tyr Arg Tyr Ala Ala Ser Gln Gly Leu Thr Ala Met Ile Cys Val Tyr
                245                 250                 255
Gly Val Pro Leu Leu Ile Val Asn Phe Phe Leu Val Leu Val Thr Phe
            260                 265                 270
Leu Gln His Thr His Pro Ser Leu Pro His Tyr Asp Ser Thr Glu Trp
            275                 280                 285
Glu Trp Ile Arg Gly Ala Leu Val Thr Val Asp Arg Asp Tyr Gly Ile
        290                 295                 300
Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His
305                 310                 315                 320
Leu Phe Ala Thr Ile Pro His Tyr Asn Ala Met Glu Ala Thr Glu Ala
                325                 330                 335
Ile Lys Pro Ile Leu Gly Asp Tyr Tyr His Phe Asp Gly Thr Pro Trp
            340                 345                 350
Tyr Val Ala Met Tyr Arg Glu Ala Lys Glu Cys Leu Tyr Val Glu Pro
            355                 360                 365
Asp Thr Glu Arg Gly Lys Lys Gly Val Tyr Tyr Tyr Asn Asn Lys Leu
        370                 375                 380
(2) INFORMATION FOR SEQ ID NO: 5
     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 387 amino acids
          (B) TYPE: amino acid
          (C) STRANDEDNESS:
          (D) TOPOLOGY: linear
    (ii) MOLECULE TYPE: protein
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
          Met Gly Gly Gly Gly Arg Met Ser Thr Val Ile Thr Ser Asn Asn Ser
            1               5                  10                  15
          Glu Lys Lys Gly Gly Ser Ser His Leu Lys Arg Ala Pro His Thr Lys
                       20                  25                  30
          Pro Pro Phe Thr Leu Gly Asp Leu Lys Arg Ala Ile Pro Pro His Cys
                   35                  40                  45
          Phe Glu Arg Ser Phe Val Arg Ser Phe Ser Tyr Val Ala Tyr Asp Val
               50                  55                  60
          Cys Leu Ser Phe Leu Phe Tyr Ser Ile Ala Thr Asn Phe Phe Pro Tyr
           65                  70                  75                  80
          Ile Ser Ser Pro Leu Ser Tyr Val Ala Trp Leu Val Tyr Trp Leu Phe
                       85                  90                  95
          Gln Gly Cys Ile Leu Thr Gly Leu Trp Val Ile Gly His Glu Cys Gly
                   100                 105                 110
          His His Ala Phe Ser Glu Tyr Gln Leu Ala Asp Asp Ile Val Gly Leu
               115                 120                 125
```

RAW SEQUENCE LISTING DATE: 01/25/2002
PATENT APPLICATION: US/09/885,188 TIME: 17:01:05

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

```
194          Ile Val His Ser Ala Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser
195              130                 135                 140
196          His Arg Arg His His Ser Asn Ile Gly Ser Leu Glu Arg Asp Glu Val
197          145                 150                 155                 160
198          Phe Val Pro Lys Ser Lys Ser Lys Ile Ser Trp Tyr Ser Lys Tyr Ser
199                          165                 170                 175
200          Asn Asn Pro Pro Gly Arg Val Leu Thr Leu Ala Ala Thr Leu Leu Leu
201                      180                 185                 190
202          Gly Trp Pro Leu Tyr Leu Ala Phe Asn Val Ser Gly Arg Pro Tyr Asp
203                  195                 200                 205
204          Arg Phe Ala Cys His Tyr Asp Pro Tyr Gly Pro Ile Phe Ser Glu Arg
205              210                 215                 220
206          Glu Arg Leu Gln Ile Tyr Ile Ala Asp Leu Gly Ile Phe Ala Thr Thr
207          225                 230                 235                 240
208          Phe Val Leu Tyr Gln Ala Thr Met Ala Lys Gly Leu Ala Trp Val Met
209                          245                 250                 255
210          Arg Ile Tyr Gly Val Pro Leu Leu Ile Val Asn Cys Phe Leu Val Met
211                      260                 265                 270
212          Ile Thr Tyr Leu Gln His Thr His Pro Ala Ile Pro Arg Tyr Gly Ser
213                  275                 280                 285
214          Ser Glu Trp Asp Trp Leu Arg Gly Ala Met Val Thr Val Asp Arg Asp
215              290                 295                 300
216          Tyr Gly Val Leu Asn Lys Val Phe His Asn Ile Ala Asp Thr His Val
217          305                 310                 315                 320
218          Ala His His Leu Phe Ala Thr Val Pro His Tyr His Ala Met Glu Ala
219                          325                 330                 335
220          Thr Lys Ala Ile Lys Pro Ile Met Gly Glu Tyr Tyr Arg Tyr Asp Gly
221                      340                 345                 350
222          Thr Pro Phe Tyr Lys Ala Leu Trp Arg Glu Ala Lys Glu Cys Leu Phe
223                  355                 360                 365
224          Val Glu Pro Asp Glu Gly Ala Pro Thr Gln Gly Val Phe Trp Tyr Arg
225              370                 375                 380
226          Asn Lys Tyr
227          385
229 (2) INFORMATION FOR SEQ ID NO: 6
230      (i) SEQUENCE CHARACTERISTICS:
231           (A) LENGTH: 383 amino acids
232           (B) TYPE: amino acid
233           (C) STRANDEDNESS:
234           (D) TOPOLOGY: linear
235     (ii) MOLECULE TYPE: protein
236     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
237           Met Gly Ala Gly Gly Arg Met Pro Val Pro Thr Ser Ser Lys Lys Ser
238             1               5                  10                  15
239           Glu Thr Asp Thr Thr Lys Arg Val Pro Cys Glu Lys Pro Pro Phe Ser
240                         20                  25                  30
241           Val Gly Asp Leu Lys Lys Ala Ile Pro Pro His Cys Phe Lys Arg Ser
242                     35                  40                  45
243           Ile Pro Arg Ser Phe Ser Tyr Leu Ile Ser Asp Ile Ile Ile Ala Ser
```

VERIFICATION SUMMARY DATE: 01/25/2002
PATENT APPLICATION: US/09/885,188 TIME: 17:01:06

Input Set : N:\Crf3\RULE60\09885188.raw
Output Set: N:\CRF3\01252002\I885188.raw

L:21 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:22 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]